



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,748	09/25/2003	Cheol-Hee Moon	P56909	4498

7590 11/07/2006

Robert E. Bushnell
Suite 300
1522 K Street, N.W.
Washington, DC 20005

EXAMINER

GUHARAY, KARABI

ART UNIT	PAPER NUMBER
----------	--------------

2879

DATE MAILED: 11/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/669,748

Applicant(s)

MOON, CHEOL-HEE

Examiner

Karabi Guharay

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment, filed on 8/14/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,7-12,14-22 and 24-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12,14,17-19 and 24 is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7-11,15,16,20-22 and 25 is/are rejected.
- 7) ☒ Claim(s) 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/12/2006.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

Response to Amendment

Amendment, filed on 14 August 2006 has been considered and entered.

Claims 1, 4, 11 & 15 are amended. Claim 26 is added.

Currently claims 1, 4-5, 7-12, 14-22, 24-26 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-5, 8-9, 20 & 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Asano et al. (US 6,008,582).

Regarding claims 1 & 25, Asano discloses a PDP, comprising (see Figs. 4 and 5 in view of Fig.1) a front substrate 10 and a rear substrate 3 opposing one another with a predetermined gap there between, a plurality of display electrodes 4,5 formed on the front substrate, a dielectric layer 6 formed on the front substrate covering the display electrodes; a plurality of first barrier ribs 1a, 1b, 1c and a plurality of second barrier ribs 52a, 52b, 52c formed on the rear substrate essentially perpendicular to each other forming an array of discharge cells 2a, each discharge cell being completely surrounded by said first and second barrier ribs; a plurality of phosphor layers 9 formed in the

discharge cells; and a plurality of electrically conductive address electrodes 8 being formed orthogonal to the display electrodes in the discharge cells, said address electrodes being parallel to said first barrier ribs, the address electrodes being coated with a dielectric material (see Col. 4, lines 43-44), wherein a phosphor layer is further coated on an outer circumference of the dielectric material coating the address electrode (see Fig. 1 in view of Col. 4, lines 43-44), wherein the discharge cells defined by the first and second barrier ribs being rectangular and staggered to discharge cells on an opposite side of a first barrier rib (see Figs. 4-5 in view of Fig. 1).

Regarding claim 5, Asano discloses a height t_2 of the second barrier rib being less than a height t_1 of the first barrier ribs (see Figs. 4-5).

Regarding claim 8, Asano discloses conductive wires forming the address electrodes being polygonal in cross section (see Fig. 1).

Referring to claim 9, Asano discloses the discharge cells 2a defined by the first and second barrier ribs having a polygonal shape (see Figs. 4-5).

Referring to claim 20, Asano discloses the address electrodes being realized through electrically conductive wires.

Claims 1, 15-16 & 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Kato et al. (US 6,670,757).

In regards to claims 1 & 15, Kato discloses a PDP comprising (see at least Figs. 7, 9, 25 and 26): a front substrate 10 and a rear substrate 20 opposing one another with a predetermined gap there between; a plurality of display electrodes 41,42 formed on the front substrate; a dielectric layer 11 formed on the front substrate covering the

Art Unit: 2879

display electrodes; a plurality of barrier ribs formed on the rear substrate comprising a plurality of first barrier rib members 21 formed in a direction orthogonal to the display electrodes, and a plurality of second barrier rib members 23 formed in a direction parallel to the display electrodes, the first barrier rib member intersecting the second barrier rib members (see at least Fig. 7, in view of Col. 11, lines 28-35), the plurality of barrier ribs forming an array of discharge cells, each discharge cell being bounded by a pair of first barrier rib members and a pair of second barrier rib members, a phosphor layer 22 being formed in respective discharge cells; and address electrodes 31 comprising conductive wires and coated with a dielectric material 24, the address electrodes being mounted on the second barrier rib members (see Col. 11, lines 28-35), the address electrodes being orthogonal to the display electrodes.

Regarding claim 16, Kobayakawa et al. disclose that the terminal ends of the electrode positioned in the fixing grooves are further secured by an adhesive member (frit glass 20, lines 61 of column 3-24 of column 4). The same reason for combining as in claim 1 applies.

Referring to claim 22, Kato et al. disclose that each of the plurality of address electrodes 31 being mounted on the second barrier ribs (23).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2879

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 6,008,582) as applied to claim 1.

Regarding claims 7 and 10, Asano discloses the claimed invention except for the limitation of the address electrodes having a circular cross section and the discharge cells having a circular shape.

However, it has been held that a change in shape is generally recognized as being within the level of ordinary skill in the art. Thus, it would have been obvious to one having ordinary skill in the art to provide the address electrodes with a circular cross section and the discharge cells with a circular shape, since such a modification would have involve a mere change in the shape of a component. See for example Kao (US 6,495,967) and Kunii (US 6,608,441) for evidence of discharge cells having a substantially circular shape, and Moore (US 6,459,200) for evidence of wire electrodes having a substantial circular cross section.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 6008582), further in view of Kobayakawa et al. (US 4,047066).

Regarding claim 4, Asano et al. fail to disclose fixing grooves in edges of the rear substrate at areas corresponding to terminal areas of each address electrodes, where fixing grooves securing the terminal ends of the address electrode and the terminal ends of the electrode positioned in the fixing grooves are further secure by an adhesive member.

However, in the same field of plasma display (lines 1-17 of column 1) Kobayakawa discloses the means for fixing the ends of the electrode terminal, where the means are grooves formed at the peripheral edges of the substrate for snugly attach the terminals of the electrodes and connecting the electrodes to the external circuit (see Fig 2 & Fig 3) and the terminal ends of the electrode positioned in the fixing grooves are further secure by an adhesive member(frit glass 20, lines 61 of column 3-24 of column 4). Such an arrangement of fixing grooves provides mechanically strong terminals (lines 19-57 of column 2).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have fixing grooves, as taught by Kobayakawa et al., for the address electrodes on the substrate of the device of Asano et al., since such arrangement provides a mechanically strong fixation of the terminals of the electrode.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 6,008,582) or Kato et al. (US 6,670,757), as applied to claim 1, further in view of Whang et al. (US 6373195).

Regarding claim 11, Asano or Kato discloses all the limitations of claim 11, except for discharge cells on the opposite sides of the first barrier rib are staggered by a distance that is less than a length of a side of a discharge cell that borders the first barrier ribs.

However, in the same field of Plasma display, Whang et al. disclose a plasma panel having discharge cells (28) defined by first barrier ribs (30) and second barrier

Art Unit: 2879

ribs are rectangular and staggered wherein discharge cells on the opposite sides of the first barrier rib are staggered by a distance that is less than a length of a side of a discharge cell that borders the first barrier ribs (see Fig 3, & Fig 4C).

Further Whang et al. teach that such delta shape arrangements of pixels (staggered arrangement) are preferred so as to attain absolute luminance and luminance efficiency (lines 5-17 of column 1).

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to stagger the discharge cells of Asano or Kato, in a delta shape so that discharge cells on the opposite sides of the first barrier rib are staggered by a distance that is less than a length of a side of a discharge cell that borders the first barrier ribs, since such arrangement of pixels provides absolute luminance and luminance efficiency (lines 26-31 of column 2).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 6,008,582) or Kato et al. (US 6,670,757), as applied to claim 1, further in view of Mun KR 102000-0039002).

Asano and/or Kato disclose the claimed invention except for the limitation of the address electrodes being completely surrounded by the dielectric material and the dielectric material being completely surrounded by the phosphor layer. However, in the same field of endeavor, Mun discloses a PDP having an address electrodes completely surrounded by a dielectric material and phosphor layer, with the purpose of enlarging

the phosphor area, thus increasing the luminance of radiation (see Page 9-3, paragraphs 18-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to completely surround the address electrode with a dielectric material and phosphor in order to enlarge the phosphor area, thus increasing the luminance of radiation.

Allowable Subject Matter

Claims 12, 14, 17-19, 24 are allowed over the prior art of record.

Claim 26 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 12 & 26 include the allowable subject matter of "grooves are formed in distal ends of the second barrier rib members into which the address electrodes are inserted."

Claims 14, 17-19 & 24 are allowed for the same reason as claim 12 for their dependency status from claim 12.

Response to Arguments

Applicant's arguments filed 8/14/06 have been fully considered but they are not persuasive.

In the Remark, page 10, applicant contends, "the lattice shaped discharge cell array cannot be considered to be staggered. Applicant submits that staggered means that one row of discharge cells is shifted by a fraction of a discharge cell pitch from another row".

Examiner respectfully presents that claim language of **amended claim 1** recites "discharge cells are rectangular and staggered to discharge cells on an opposite side of a first barrier rib", such language is not limited to the meaning presented in the Remark. In a lattice structure of barrier ribs, for any discharge cell in a position (i,j) , a discharge cell in a position $(i+1, j+1)$ or $(i+1, j-1)$, is in a staggered manner and on an opposite side of a first barrier rib.

It seems from Applicant's remarks that the intended feature is that one row of the discharge cells are shifted by a fraction from another row of discharge cells which are on the opposite side of the first barrier rib. However, that is not the claimed limitation.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

Art Unit: 2879

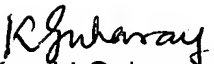
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is 571-272-2452. The examiner can normally be reached on Monday-Friday 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Karabi Guharay
Primary Examiner
Art Unit 2879

11/2/06